

Prevalence of Overweight and Fruit and Vegetable Consumption of California Adults in Food Stamp Households

Akpene Atiedu, MS¹, Holly Hoegh, PhD², Patrick R. Mitchell, Dr.P.H.¹.

(1) Cancer Prevention and Nutrition Section, Public Health Institute, P.O. Box 997413, MS 7204, Sacramento, CA 95899-7413.
(2) Survey Research Group, 1700 Tribute Road, Suite 100 Sacramento, CA 95815

Objective

Examines the relationship between weight status and FSP, and FV consumption and FSP, of California adults (≥ 18y).

Background

Some studies have shown a positive association between Food Stamp Program (FSP) participation and being overweight or obese in certain populations, such as women. (1,2) However, causality can not be determined using a cross-sectional study design. It is well documented that one important strategy for reducing the risk of becoming overweight and obese is eating a healthy diet, including recommended amounts of fruits and vegetables (FV). Diet is one of many factors that may affect weight status and could partly explain the differences seen in weight status of FSP participants. However, there is a dearth of information on the relationship between FSP participation and diet, especially FV consumption. One study that has looked at the relationship between FSP participation and FV consumption found that there was a significant difference in fruit consumption but not vegetables.(3)

References

- Gibson D. (2003). Food stamp participation is Positively related to obesity in low income women. *J. Nutr.* 144: 2117-2118.
- Townsend, M., Pearson, J. Love, B., Achterberg, C. & Murphy, S. (2001). Food insecurity in a rural New York state county. Discussion paper no. 1120-97. Institute of Research on Poverty, University of Wisconsin, Madison, WI.
- Carson, K.L., Burney, J., Moore, W., Poling, R., Shivers, S., Cox, R., et al. (2000). A comparison of demographic variables, food/nutrient intakes, level of food security, and food/nutrient changes with Carolina, Tennessee, and Virginia. Mississippi State, MS: Southern Rural Development Center.



Methods

- 2004 California Behavioral Risk Factor Surveillance System data.
- Data were weighted to the 2000 California census population.
- Preliminary Analyses
 - Frequencies (overweight status, BMI, eating 5 or more a day, and mean serving of FV)
 - Bi-variate analyses
 - FSP participation vs. overweight status (Chi-square)
 - FSP participation vs. BMI (t-test)
 - FSP participation vs. eat 5 or more a day (Chi-square)
 - FSP participation vs. mean FV servings (t-test).
 - General linear regression models controlling for pertinent determinants.

Results

Weight Status and Fruit and Vegetable Consumption among Food Stamp and Non-Food Stamp Users					
	FSP Below 130% FPL	Below 100% FPL	Non-FSP 100%-200% of FPL	>200% of FPL	p ¹
BMI (mean)	29.2	27.9	27.3	26.2	<.001
Overweight/Obese (%)	76	67	65	56	<.001
Servings of FV (mean)	3.3	3.7	3.6	3.7	.77
Ate 5+ Servings of FV (%)	28	28	28	29	.99

N= 4093

[1] Comparisons were made with t-test for continuous variables and Chi-square goodness of fit test for categorical variables
FPL=Federal Poverty Level; FSP= Food Stamp Participants; FV=Fruits and Vegetables; BMI=Body Mass Index

Consumption of Fruit and Vegetable by Gender				
Poverty Index	Percent Eating 5+ Servings of FV		Mean Servings of FV	
	Men	Women	Men	Women
FSP	37 *	23	3.4	3.2 *
Non FSP w/ HH income below 100% FPL	21	34	2.9	4.0
Non FSP w/ HH income 100%-200% of FPL	21	35	3.1	3.9
Non FSP w/ HH income >200% of FPL	24	34	3.3	4.0

(Men) N=1797

(Women) N=2666

[*] = p<0.05

HH=Household

Determinants of Fruit and Vegetable Consumption in Women With Household						
	Model 1 R ² =0.015		Model 2 R ² =0.036		Model 3 R ² =0.049	
Variables	b	p	b	p	b	p
Food Stamp User						
Yes	-0.767	0.017	-0.861	0.008	-0.861	0.008
Education (compared to less than high school)						
High school or more	---	---	-0.367	0.245	-0.366	0.246
Age						
Number of Years	---	---	0.010	0.284	0.017	0.286
Ethnicity (compared to African American)						
Caucasian/ Non- Hispanic	---	---	-1.458	0.013	-1.458	0.014
Hispanic	---	---	-0.677	0.226	-0.676	0.228
Other	---	---	-0.765	0.313	-0.763	0.315
Food Insecurity						
Yes	---	---	---	---	-0.015	0.957

N=433

- There was a significant difference in mean BMI and percent overweight and obese between FSP and non-FSP respondents.

- There was no significant difference in fruit and vegetable consumption.

When gender was separated out:

- Significantly more FSP participant men reported eating 5 or more servings of fruits and vegetables.

- In women, there was a significant difference in mean servings of fruit and vegetable eaten among the groups.

- FSP participant women ate significantly less fruits and vegetables.

Looking specifically at very low-income women (household income below FPL):

- Food Stamp use alone was significant.

- After controlling for other confounding factors, it was still significant.

- FSP women ate significantly less fruits and vegetables.

Discussion

Weight status

- FSP participants were more likely to be overweight or obese than non-FSP participants of varying poverty levels (p-value= <.001).
- BMI of FSP participants was significantly higher than non-FSP participants of varying poverty levels.
- Consistent with findings from other studies; but not causal.

Fruit and Vegetable Consumption

- Eating of the then-recommended five or more servings of FV and mean servings of FV consumption did not vary by FSP participation (p-values= 0.77 and 0.99, respectively).
- When separating out genders, women participating in FSP ate significantly fewer fruits and vegetables.
- The most striking difference was between female FSP participants and female non-FSP participants who had a HH income below 100% FPL (3.22 compared with 3.98, respectively).

Regression Models- Base: Low-income women (Below FPL),

- Model 1: There was a significant difference in FV consumption between female FSP and non-FSP participants.
- Model 2: Controlling for ethnicity, education, and age, female FSP participants ate fewer FV than female non-FSP of varying poverty levels.
- Model 3: After adding food insecurity to Model 2, female FSP participants still ate fewer FV when compared to non-FSP of varying poverty levels.
- Important to note that these models only explain a small portion of the variance.



Conclusion

- Overweight and obesity is a multifaceted problem
 - Cannot be explained through dietary behaviors alone.
 - Results show that FV consumption may play an important role in women.
- We cannot imply a causal relationship from a cross-sectional study.
 - Differences may be associated with income.
- These results are not conclusive
 - There may be other factors that this study did not control for in the regression models.